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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,801	03/12/2004	Sander Jurgen Roosendaal	NL010603A	8309

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EXAMINER	
NGUYEN, HOAN C	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/799,801	ROOSENDAAL ET AL.	
	Examiner	Art Unit	
	HOAN C. NGUYEN	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-27* is/are pending in the application.

4a) Of the above claim(s) *6-10,14 and 16-19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-13,15 and 20-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Species D and Sub-species II (claims 1-27) in Paper on 07 April 2005 is acknowledged.

Applicant's arguments regarding the restriction requirement have been considered; however, the traversal was on the grounds that there is no serious burden on the Examiner in examining all of claims. This is not found persuasive since the method using mask for producing a pattern optical foil has different steps providing in three different embodiments, which disclosed in paragraphs 10-12, and the method for producing a pattern optical foil, which has the first optical retardation is substantially different from the second optical retardation.

Therefore, the requirement is deemed proper and is considered to be final.

Claims 14, 16 and 18 cite features, which does disclose in the nonelected sub-species I, III and IV. Thus, claims 14 and 16-19 are withdrawn from consideration.

Claims 6-10 and 14 and 16-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Therefore, ONLY claims 11-13, 15 and 20-27 are pending in the elected Species.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features

Claim 11:

> "a patterned λ/4 foil processing with the reactive liquid crystal material via the pattern to produce the retardation of the first area segments different from the retardation second area segments".

Claim 15:

> "photo-polymerizing the reactive liquid crystal material at a first temperature at which the reactive liquid crystal material is in a nematic liquid crystal phase, and photo-polymerizing the reactive liquid crystal material at a second temperature that is above a clearing point of the reactive liquid crystal material".

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11, 12, 15 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites feature "a patterned λ/4 foil processing with the reactive liquid crystal material via the pattern to produce the retardation of the first area segments different from the retardation second area segments" does not disclose in the specification. In Applicants' Remarks, this feature discloses in paragraphs [008], [023], [0034] and [0040]-[0044]. However, these paragraphs disclose ONLY *the removal of a quarterwave retarder at transmissive sub-pixels (with d=0.0)*, **NOT** the reactive liquid crystal material via the pattern to produce the retardation of the first area segments (reflective sub-pixels) different from the retardation second area segments (transmissive sub-pixels with d≠0.0) in claim 11, in which "photo-polymerizing the reactive liquid

crystal material at a first temperature at which the reactive liquid crystal material is in a nematic liquid crystal phase, and photo-polymerizing the reactive liquid crystal material at a second temperature that is above a clearing point of the reactive liquid crystal material" in claim 15.

Claims 12 and 26 recite "the first optical retardation is in the range of 80 to 100 degrees, and the second optical retardation is at or near zero degrees". This is an error since the optical retardation does not measure in degrees. However, the specification discloses "the preferred twist angle of the liquid crystal layer 12, 22 (not of a patterned $\lambda/4$ foil 16a, 26a) is ± 90 degrees. Further fine-tuning of the twist angle (between essentially 80-100 degrees) is possible in order to improve the contrast ratio and grey-scale inversion at larger viewing angles."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11, 13, 15, 20-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winker et al. (US6239853B1).

In regard to claim 11, Winker et al teach (Figs. 2-4) a method of producing a patterned optical foil, comprising:

- providing a film of polymerizable liquid crystal monomer material;
- providing a pattern for processing the polymerizable liquid crystal monomer that defines first area segments and second area segments of the film: and
- processing the polymerizable liquid crystal monomer via the pattern to produce:
- a first optical retardation (P2) in the first area segments 36, and a second optical retardation (P1) in the second area segments 34;

wherein

- the first optical retardation rotating the polarized light the desired angle (col.3 line 60-61) is substantially different from the second optical retardation transmitting light without rotation (col. 3 lines 58-59).

Claims 13 and 27:

- the first optical retardation is substantially inherently determined by a thickness of the reactive liquid crystal material since optical retardation defines as the product of anisotropic index refraction and thickness.

Claim 15:

- polymerizable liquid crystal monomer material processing with heat (col. 5 lines 10-12); therefore, the processing of the polymerizable liquid crystal monomer material via the pattern inherently includes:
    - polymerizable liquid crystal monomer material P2 at a first temperature.

- polymerizable liquid crystal monomer material P1 at a second temperature that is inherently above a clearing point of the polymerizable liquid crystal monomer material (above a glass transition temperature of polymer) for transmitting light without rotation (col. 3 lines 58-59).

Claims 20-21, 23 and 25:

- the first area segments and second area segments form pairs of segments that are arranged as a two-dimensional array of pairs of segments (claim 20), wherein the array of pairs of segments corresponds to an array of pixels of a display device according to claims 21 and 23 (col. 4 lines 37-42), wherein each pixel inherently including electrodes that are configured to control the liquid crystal material (claim 25).

Claim 22:

- the second area segments 34 are substantially transparent due to transmitting light without rotation (col. 3 lines 58-59).

Claim 24:

- providing a pair of polarizers 22/24 that sandwich the array of pixels 26 to form the display device.

However, Winker et al. fail to disclose a film of polymerizable liquid crystal monomer material, which is made of a reactive liquid crystal material.

Koch et al. teach (col. 17 lines 18-20) a film of polymerizable liquid crystal monomer material, which is made of a reactive liquid crystal material for providing polar tilt angles at the liquid crystal/alignment layer interface.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a method of producing a patterned optical foil as Winker et al. disclosed with a film of polymerizable liquid crystal monomer material, which is made of a reactive liquid crystal material for providing polar tilt angles at the liquid crystal/alignment layer interface as taught by Koch et al. (col. 17 lines 18-20).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Gunning (US 5926241A) discloses a photo-patterned compensator in accordance with the invention formed from a plurality of thin film layers, the total reactive liquid crystal material thickness is typically between approximately 1.0μm and 3.0μm.

Parri et al. (US 5518652 A) disclose copolymers made from mono-reactive liquid and/or di-reactive liquid crystals which can be photopolymerized to form copolymers and to novel reactive liquid crystal compound having a nematic phase.

Moseley et al. (US 6046849 A) disclose a patterned retarder then planarised by means of a planarisation layer 65. The layer 65 fills the gaps left by the removed unpolymerised retarder material as illustrated in FIG. 15(c). The material of the planarisation layer 65 is preferably isotropic, transparent and substantially similar in thickness to the retarders 63. Suitable materials include acrylic and epoxy resins.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim H. Robert can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HOAN C. NGUYEN
Examiner
Art Unit 2871

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